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*"Welcome Shelter Near Trail's End"*

FEDERAL-STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

ARIZONA

FEBRUARY 15, 1947

By

Division of Irrigation, Soil Conservation Service  
United States Department of Agriculture

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Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.



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Report Prepared

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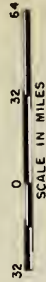
Clyde E. Houston—Hydraulic Engineer

DIVISION OF IRRIGATION  
SOIL CONSERVATION SERVICE  
AGRICULTURAL EXPERIMENT STATION  
RENO, NEVADA



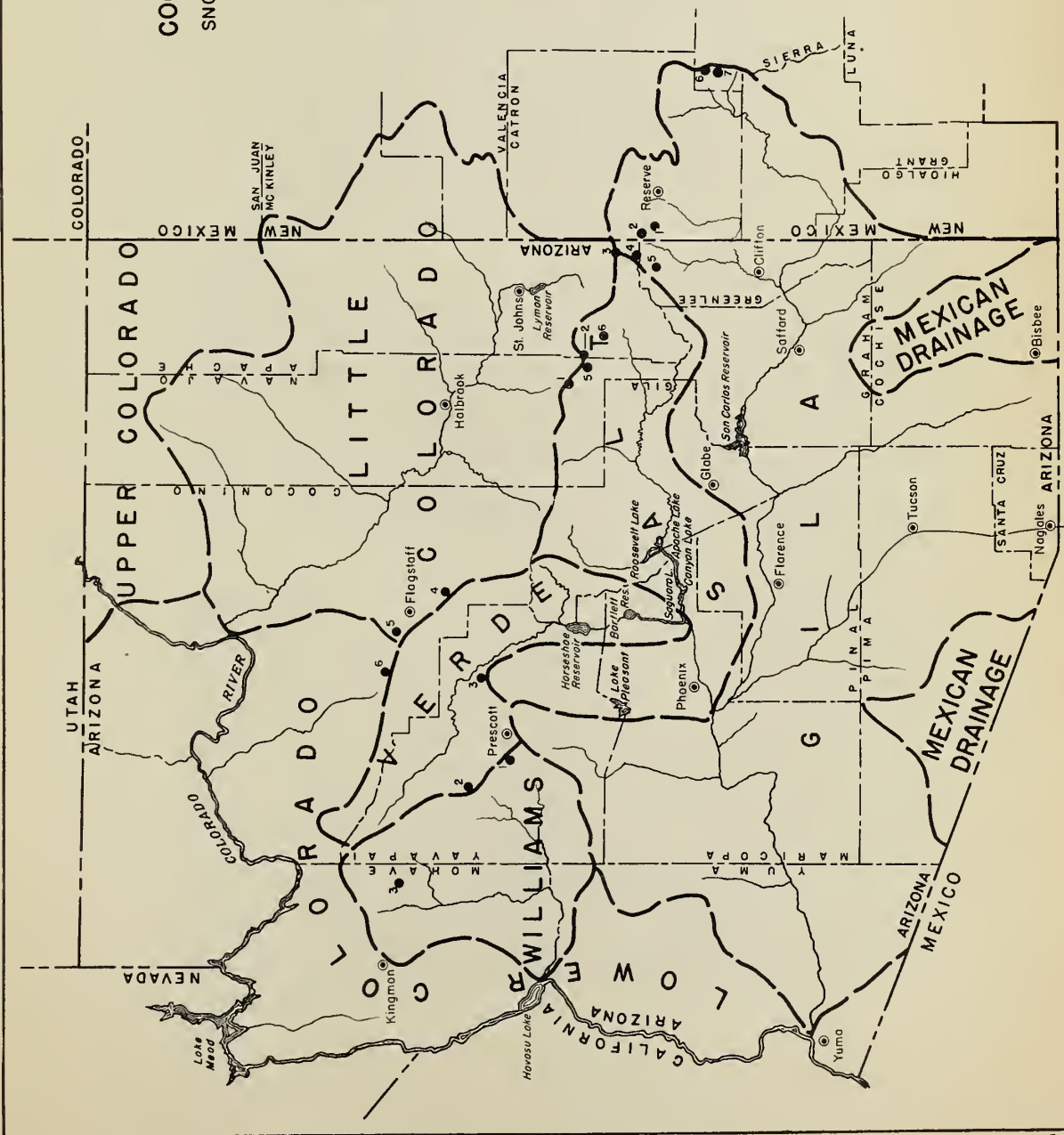
# ARIZONA COOPERATIVE SNOW SURVEYS SNOW COURSES AND DRAINAGE BASINS

October 9, 1946



## INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
<b>LITTLE COLORADO RIVER</b>		
1.	Forest Dale	6,000
2.	May	7,200
3.	Natrilso	8,500
4.	Mormon Lake	7,350
5.	Fort Valley	7,350
<b>WILLIAMS RIVER</b>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Bush	5,000
<b>GILA RIVER</b>		
1.	Palace Bluffs	8,000
2.	State Line	8,000
3.	Natrilso	8,500
4.	Coronado Trail	8,000
5.	Beverly Bend	8,000
6.	Fort Valley	7,350
7.	Iron	7,600
<b>VERDE RIVER</b>		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Minna Mountain	7,100
4.	Mormon Lake	7,350
5.	Fort Valley	7,350
6.	Chandler	7,100
<b>SALT RIVER</b>		
1.	Forest Dale	6,000
2.	May	7,200
3.	Natrilso	8,500
4.	Coronado Trail	8,000
5.	Mormon Lake	7,350
6.	Fort Valley	7,350









## WATER SUPPLY OUTLOOK

Arizona  
February 15, 1947

\* \* \* \* \*  
\* February 15, 1947 snow surveys \*  
\* show that Arizona is still in a \*  
\* period of drought. Runoff con- \*  
\* tinues good but indications are \*  
\* that ground water storage is being \*  
\* drawn upon to furnish surface flow \*  
\* Precipitation is far below normal \*  
\* as is snow water content. Impor- \*  
\* tant storage reservoirs are danger \*  
\* ously low. At this date it appear \*  
\* that only a period of prolonged, \*  
\* above normal precipitation can \*  
\* alleviate the drastic shortage of \*  
\* irrigation water. \*  
\* \* \* \* \*

Precipitation Since January 1, precipitation throughout Arizona has been far below normal. On Little Colorado River Watershed it is about 40 percent of normal and only 30 percent of last year. On Williams it is 15 and 30 percent while on the Gila it is 40 and 35 percent respectively of normal and 1946. The Verde received about 30 percent of normal and 40 percent of last year and the Salt about 45 percent of both. These conditions exist on the mountainous portions of the watersheds as well as the valley lands.

Snow Cover As of February 15, 1947, snow cover throughout Arizona is extremely low. In all watersheds the cover is below normal and in most cases is lower than at any time on record. On Little Colorado it is about 40 percent of normal, and 30 percent of last year. Gila River Watershed is extremely low being only 5 percent of normal and 6 percent of last year. Salt River snow cover is also low having only 10 percent of normal and last year. Snow cover on Williams and Verde River Watersheds is also below normal. General soil moisture conditions on the upper reaches of the watersheds is fair to poor while in the major irrigated valleys it is about 50 percent of normal. Many of the desert ranges are barren of spring feed.



Runoff With the exception of the Gila, stream discharge continues above normal, but not to the extent measured during the early part of the water year. Gila River continues about 90 percent of normal while Little Colorado and Williams are slightly above. Salt and Verde are approximately 115 percent above normal. The low precipitation and general continuation of above normal runoff indicates that soil moisture and ground water storage on the upper reaches of the streams is being drawn upon to furnish surface runoff.

Reservoir Storage Present water storage in most of the important Arizona reservoirs is far below the February 15 normal, with very little improvement over storage a month ago. As of this date storage in the Salt River Reservoirs is about 55 percent of the 1936-45 average and 60 percent of last year. San Carlos Reservoir with usable storage capacity of about 1,200,000 acre-feet contains about 19,000 acre feet, which is 10 percent of the 1936-45 average and 70 percent of last year. Bartlett Reservoir is 50 percent of average while Lake Pleasant is 13 percent. Present storage on Verde and Little Colorado Rivers is better than the past few years on this date.



TABLE I

ARIZONA SNOW SURVEY'S FEBRUARY 15, 1947

LOCATION		SNOW COVER MEASUREMENTS																		
		Water Content (Inches)				Past Record														
		Number	Sec. Twp. Rge. Elev.	Date of Survey	Snow Depth (Inches)	1947	Same Approx. date	1946	1945	Years of Record	Av. Water Content (Inches)									
SNOW COVER																				
LITTLE COLORADO RIVER																				
Forest Dale	1	2	9N 21E 6000	2/17	0	0	2.5	0.1	8	0.6										
McNary	2	14	8N 23E 7200	2/17	0.9	0.4	3.1	2.1	8	2.6										
Nutriosio	3	25	6N 30E 8500	2/14	1.0	0.4	1.7	1.6	8	2.2										
Mormon Lake	4	13	18N 8E 7350	2/14	7.0	1.7	New Snow Course													
Port Valley	5	22	22N 6E 7350	2/14	T	T	"	"												
WILLIAMS RIVER																				
Iron Springs	1	22	14N 31E 6200	2/12	0	0	T	New Snow Course												
Camp Wood	2	3	16N 6W 5700	2/15	0	0	T	"	"											
Willow Ranch	3	16	21N 11E 5000	2/15	0	0	0	"	"											
GILA RIVER																				
Frisco Divide	1	31	6S 20N 8000	2/17	0	0	1.3	3.1	8	2.1										
State Line	2	6	6S 21W 8000	2/17	0	0	1.5	4.2	8	3.0										
Nutriosio	3	23	6N 30E 8500	2/14	1.0	0.4	1.7	1.6	8	2.2										
Coronado Trail	4	26	5N 30E 8000	2/14	0.6	0.2	1.6	3.4	8	3.5										
Beaver Head	5	13	4N 30E 8000	2/17	0	0	2.3	4.6	8	3.2										
Taylor Creek	6	20	10S 10E 8500	2/15	0	0	1.1	No Report	5	0.4										
Inman	7	6	11S 10E 8500	2/15	0	0	1.5	New Course	2	0.8										



## TABLE I

ARIZONA SNOW SURVEYS FEBRUARY 15, 1947

LOCATION				SNOW COVER MEASUREMENTS					
DRAINAGE AREA and SOURCE	Number	Sec.	Twp. Rge. Elev.	Date of Survey	Snow Depth (Inches)	Water Content (Inches)		Past Record	
						1947	1946	1945	Years of record
VERDE RIVER									
Iron Springs	1	22	14N 3W	2/12	0	0	T	New Snow Course	
Camp Flood	2	3	16N 6W	2/15	0	0	"	" "	
Mingus Mountain	3	3	15N 2E	2/14	0	0	"	New Snow Course	
Mormon Lake	4	13	18N 8E	2/14	7.0	1.7	"	" "	
Fort Valley	5	22	22N 6E	2/14	T	T	"	" "	
Chalander	4	27	22N 3E	2/17	0.9	0.3	"	" "	
SALT RIVER									
Forest Dale	1	2	9N 21E	2/17	0	0	2.5	0.1	8
McNary	2	14	8N 23E	2/17	0.9	0.4	3.1	2.1	8
Nutriso	3	23	6N 30E	2/14	1.0	0.4	1.7	1.6	8
Coronado Trail	4	26	5N 30E	2/14	0.6	0.2	1.6	5.4	8
Milk Ranch	5	28	8N 23E	2/17	0	0	1.6	0.2	7
									6.6
									2.6
									2.2
									3.5
									1.2





TABLE 2

## STATUS OF RESERVOIR STORAGE, February 15, 1947

BASIN And STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE About Feb. 15				
			1947	1946	1945	1944	10-Yr. Avg. 1936-1945
Agua Fria	Lake Pleasant	179	3	4	7	3	24
Colorado	Lake Havasu	688	629	605	571	581	506 <sup>a</sup>
Colorado	Lake Mead	27,935	16,922	18,561	19,086	20,255	20,427 <sup>a</sup>
Gila	San Carlos	1,200	19	28	105	281	243
Little Colorado	Lyman	29	13	4	2	3	7 <sup>b</sup>
Salt River	Salt River <sup>c</sup>	1,771	425	725	891	1,022	785
Verde	Bartlett	179	34	1	17	20	67 <sup>b</sup>
Verde	Horseshoe	67	16	10	New Reservoir		

a - Average for years 1939 through 1945

b - Average for years 1941 through 1945

c - Includes Roosevelt, Apache, Saguaro Canyon Lakes



LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Forest Dale . . . . .	Kindred & Schroeder
McNary . . . . .	Kindred & Schroeder
Nutriosio . . . . .	R. L. Diggs
Mormon Lake . . . . .	M. F. Greaves
Fort Valley . . . . .	E. C. Martin
Iron Springs . . . . .	Ernest Saxby
Camp Wood . . . . .	Mrs. C. C. Merritt
Willow Ranch . . . . .	Tiny Miller
Frisco Divide . . . . .	Deen M. Earl
Coronado Trail . . . . .	R. L. Diggs
Beaver Head . . . . .	Jes Burke
Taylor Creek . . . . .	F. M. Inman
Inman . . . . .	F. M. Inman
Mingus Mountain . . . . .	Harold Linn
Chalender . . . . .	V. J. Schroeder
Milk Ranch . . . . .	Kindred & Schroeder
State Line . . . . .	Deen M. Earl



The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station  
Reno, Nevada

FEDERAL

Department of Agriculture  
Forest Service  
Apache Forest  
Coconino Forest  
Gila Forest  
Kaibab Forest  
Southwestern Forest and Range Expt.  
Station, Fort Valley, Arizona  
Soil Conservation Service  
Division of Irrigation

Department of Commerce  
Weather Bureau  
Arizona Section

Department of Interior  
Bureau of Reclamation  
Region III  
Geological Survey  
Arizona District  
Indian Service  
Fort Apache Reservation

Gila Water Commissioner  
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association  
Phoenix, Arizona

San Carlos Irrigation and Drainage District  
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

